

Artificial Intelligence-Enabled Intelligent Assistant for Personalized and Adaptive Learning in Higher Education

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Abstract

This paper presents a novel framework, artificial intelligence-enabled intelligent assistant (AIIA), for personalized and adaptive learning in higher education. The AIIA system leverages advanced AI and natural language processing (NLP) techniques to create an interactive and engaging learning platform. This platform is engineered to reduce cognitive load on learners by providing easy access to information, facilitating knowledge assessment, and delivering personalized learning support tailored to individual needs and learning styles. The AIIA's capabilities include understanding and responding to student inquiries, generating quizzes and flashcards, and offering personalized learning pathways. The research findings have the potential to significantly impact the design, implementation, and evaluation of AI-enabled virtual teaching assistants (VTAs) in higher education, informing the development of innovative educational tools that can enhance student learning outcomes, engagement, and satisfaction. The paper presents the methodology, system architecture, intelligent services, and integration with learning management systems (LMSs) while discussing the challenges, limitations, and future directions for the development of AI-enabled intelligent assistants in education.